	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Description
Byte 1	0	0	y sign	x sign	1	M	R	L	x/y signs and L/R/M buttons
Byte 2	x7	x6	x5	x4	x3	x2	x1	x0	x data byte
Byte 3	y7	y6	y5	y4	y3	y2	y1	y0	y data byte
Byte 4	0	0	B5	B4	z3	z2	z1	z0	z/wheel data and buttons 4/5

FIG. 1
Prior Art

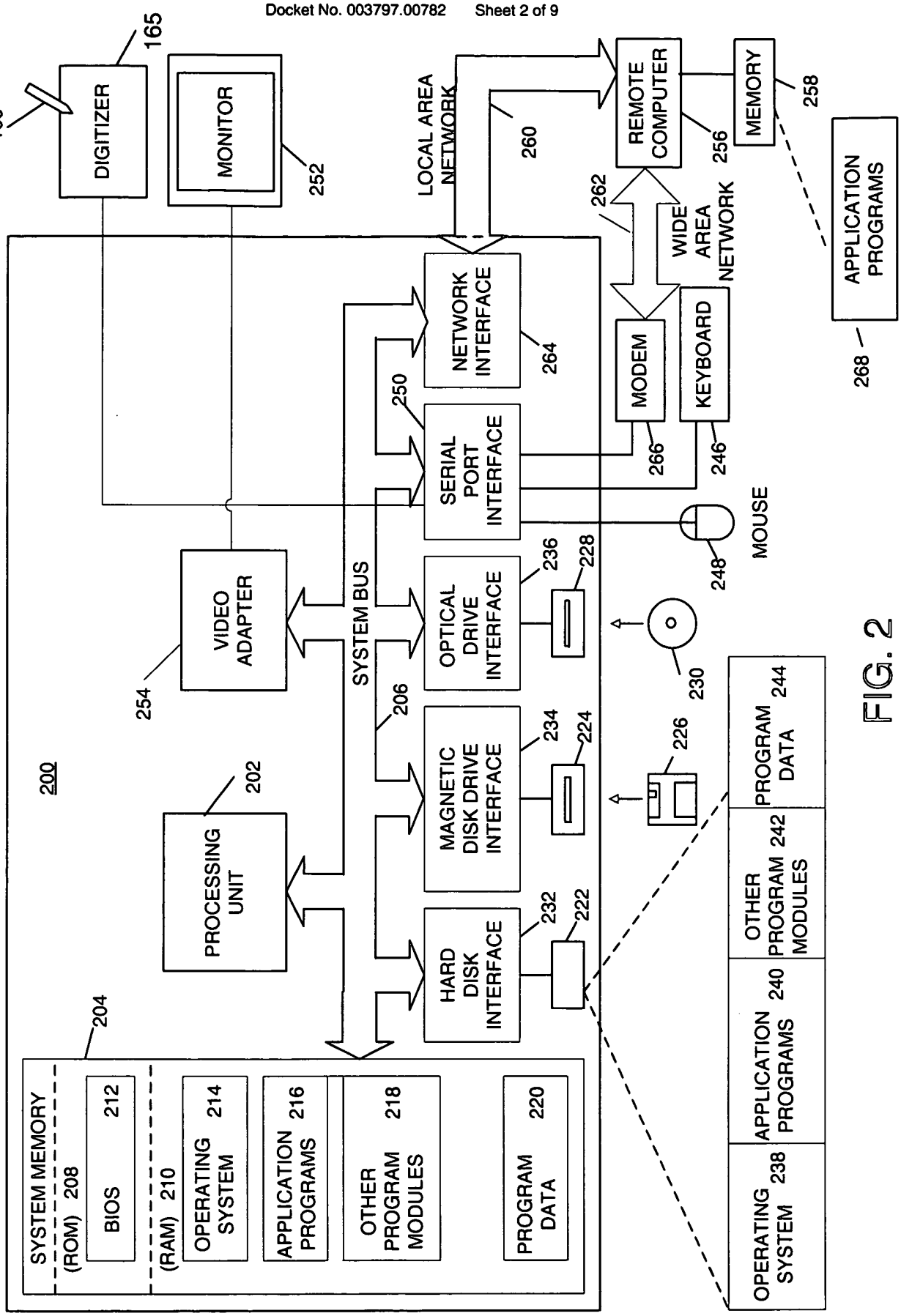
165
166
DIGITIZER
MONITOR
252
LOCAL AREA NETWORK
260
REMOTE COMPUTER
256
MEMORY
258
APPLICATION PROGRAMS
268
262
WIDE AREA NETWORK
MODEM
266
KEYBOARD
246
MOUSE
248
NETWORK INTERFACE
264
250
SERIAL PORT INTERFACE
SYSTEM BUS
VIDEO ADAPTER
254
OPTICAL DRIVE INTERFACE
236
228
230
206
MAGNETIC DISK DRIVE INTERFACE
234
224
226
HARD DISK INTERFACE
232
222
200
PROCESSING UNIT
202
204
SYSTEM MEMORY
(ROM) 208
BIOS 212
(RAM) 210
OPERATING SYSTEM 214
APPLICATION PROGRAMS 216
OTHER PROGRAM MODULES 218
PROGRAM DATA 220
PROGRAM DATA 244
OTHER PROGRAM MODULES 242
APPLICATION PROGRAMS 240
OPERATING SYSTEM 238

FIG. 2

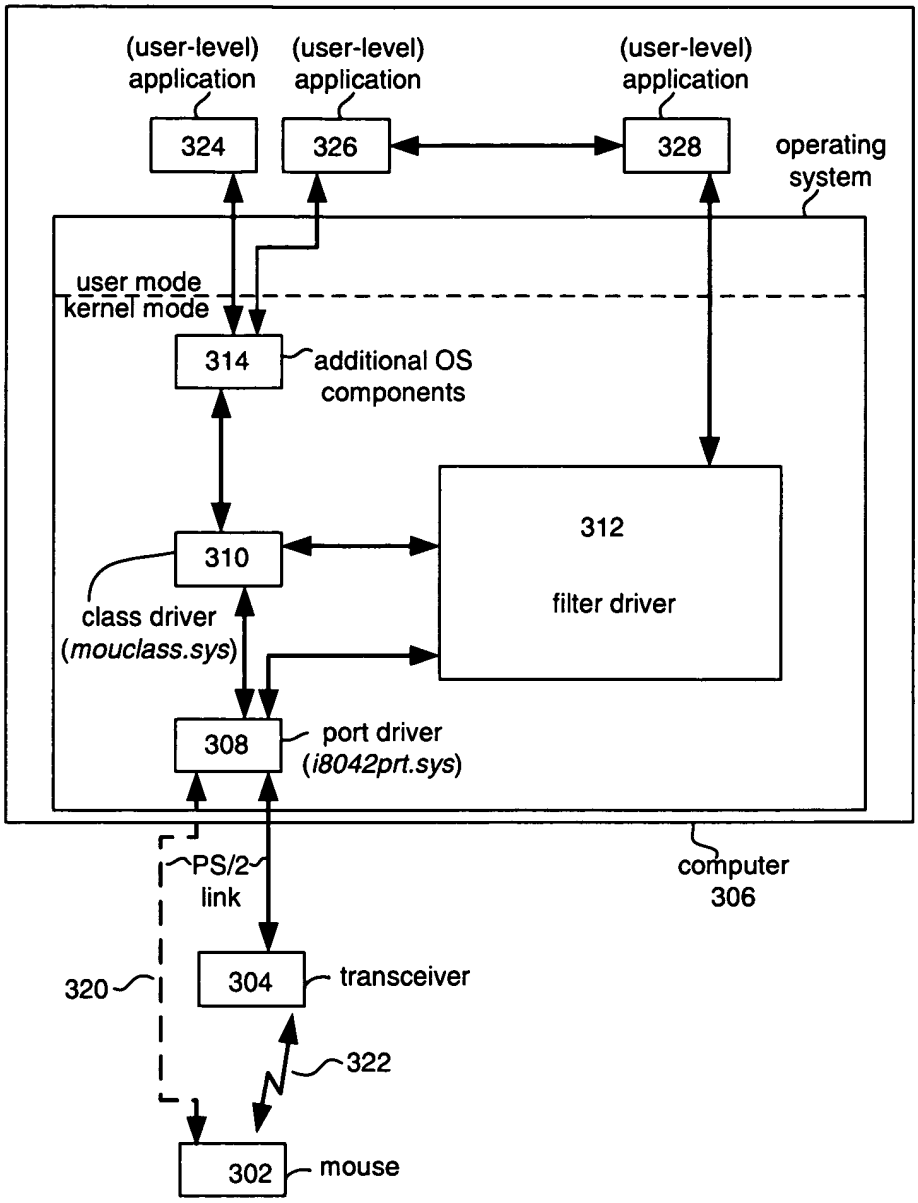
(user-level) application
(user-level) application
(user-level) application
324
326
328
operating system
user mode
kernel mode
314
additional OS components
312
filter driver
310
class driver (mouclass.sys)
308
port driver (i8042prt.sys)
computer 306
PS/2 link
320
304
transceiver
322
302
mouse

FIG. 3

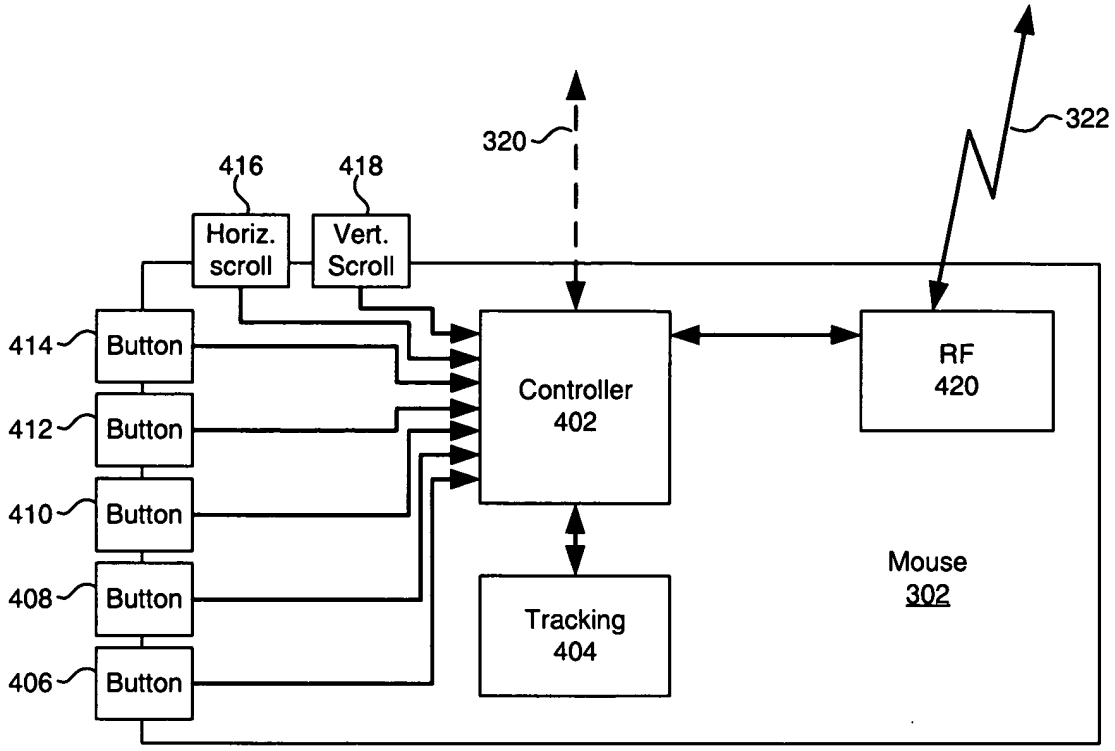
320
322
416
418
Horiz. scroll
Vert. Scroll
414
Button
412
Button
410
Button
408
Button
406
Button
Controller 402
RF 420
Tracking 404
Mouse 302

FIG. 4A

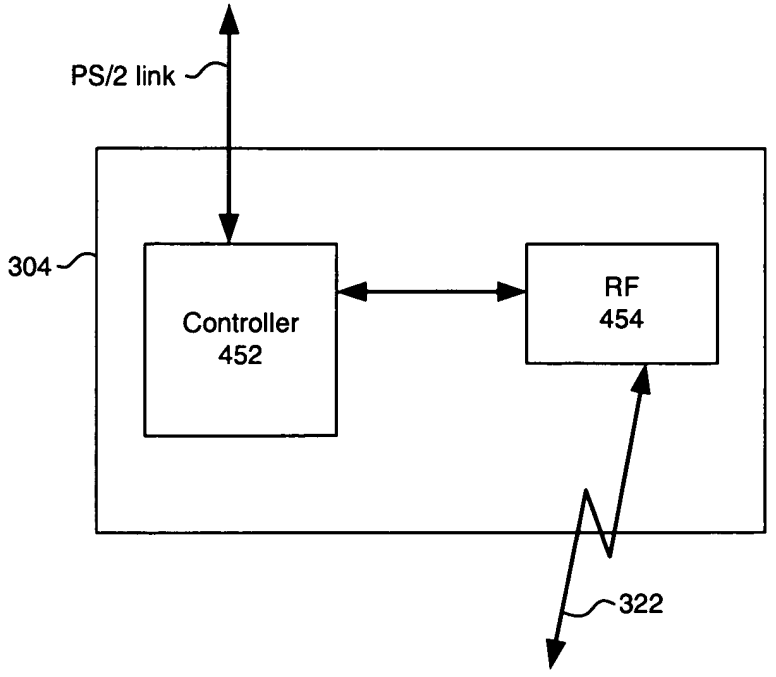
PS/2 link
304
Controller 452
RF 454
322

FIG. 4B

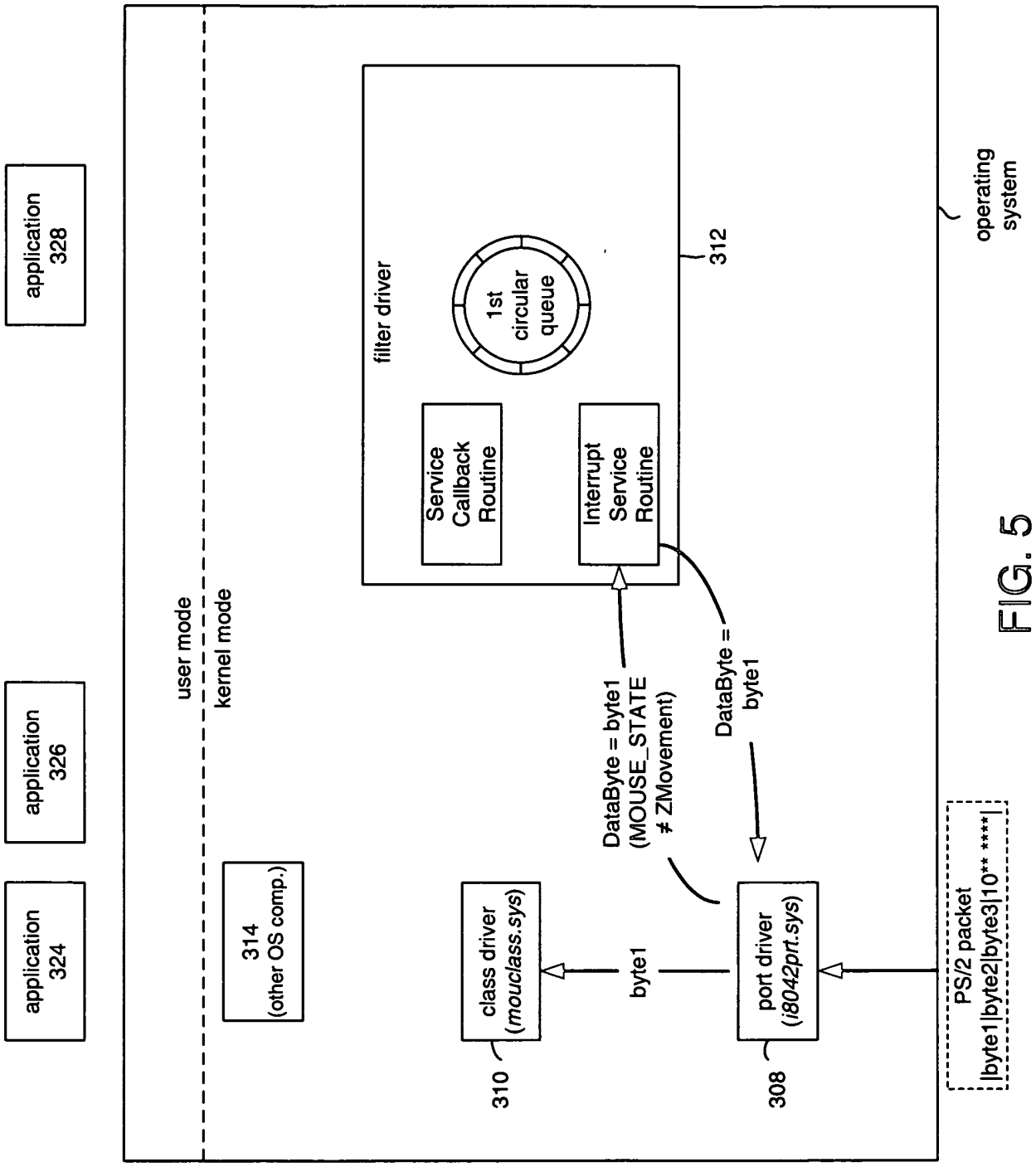
application 328
application 326
application 324
user mode
kernel mode
operating system
filter driver
1st circular queue
312
Service Callback Routine
Interrupt Service Routine
DataByte = byte1 (MOUSE_STATE ≠ ZMovement)
DataByte = byte1
314 (other OS comp.)
class driver (mouclass.sys)
310
byte1
port driver (i8042prt.sys)
308
PS/2 packet |byte1|byte2|byte3|10** ****|

FIG. 5

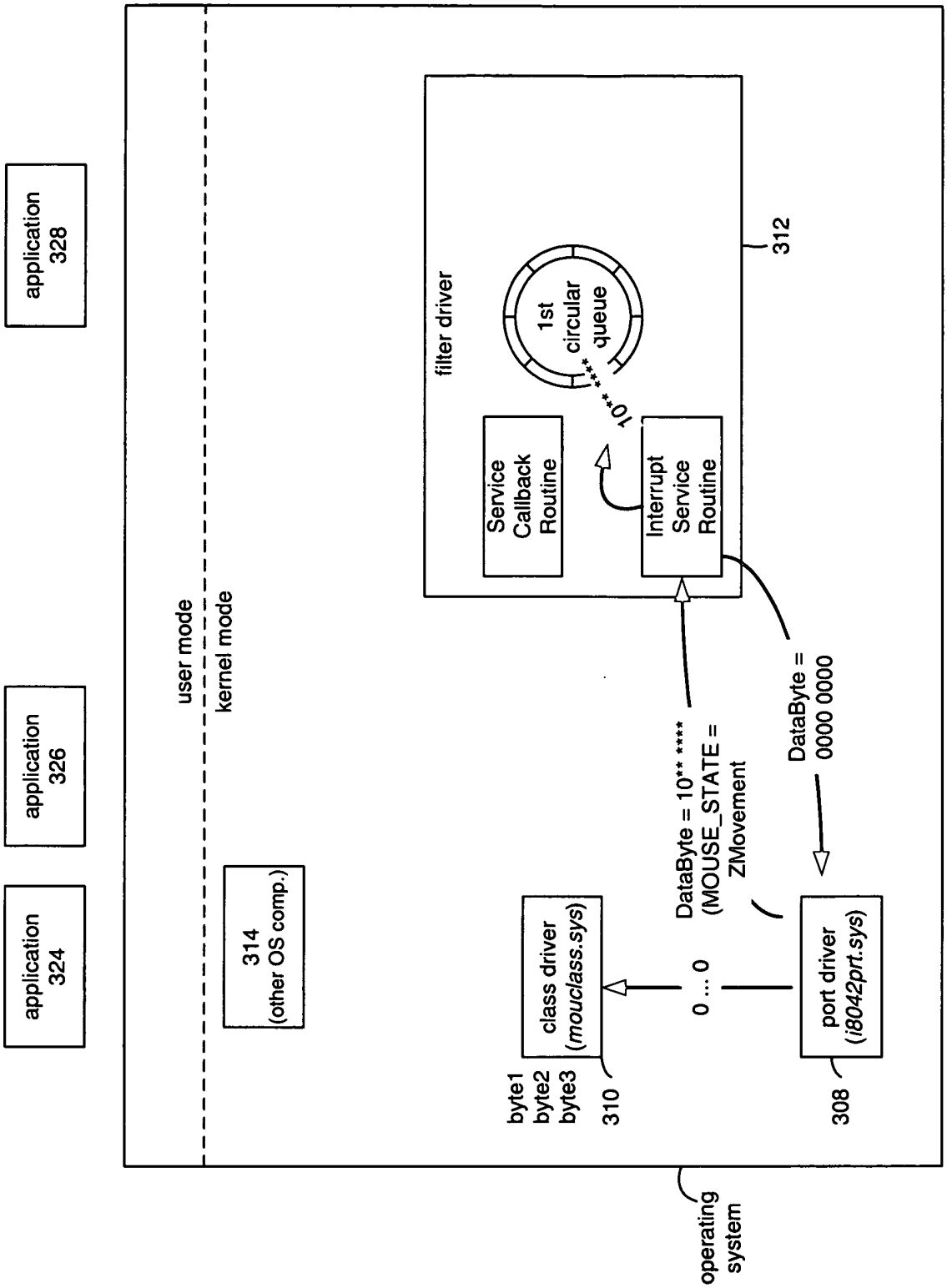
application 328
application 326
application 324
user mode
kernel mode
314 (other OS comp.)
filter driver
1st circular queue
10******
Service Callback Routine
Interrupt Service Routine
312
DataByte = 10** **** (MOUSE_STATE = ZMovement
DataByte = 0000 0000
class driver (mouclass.sys)
port driver (i8042prt.sys)
0 ... 0
byte1 byte2 byte3
310
308
operating system

FIG. 6

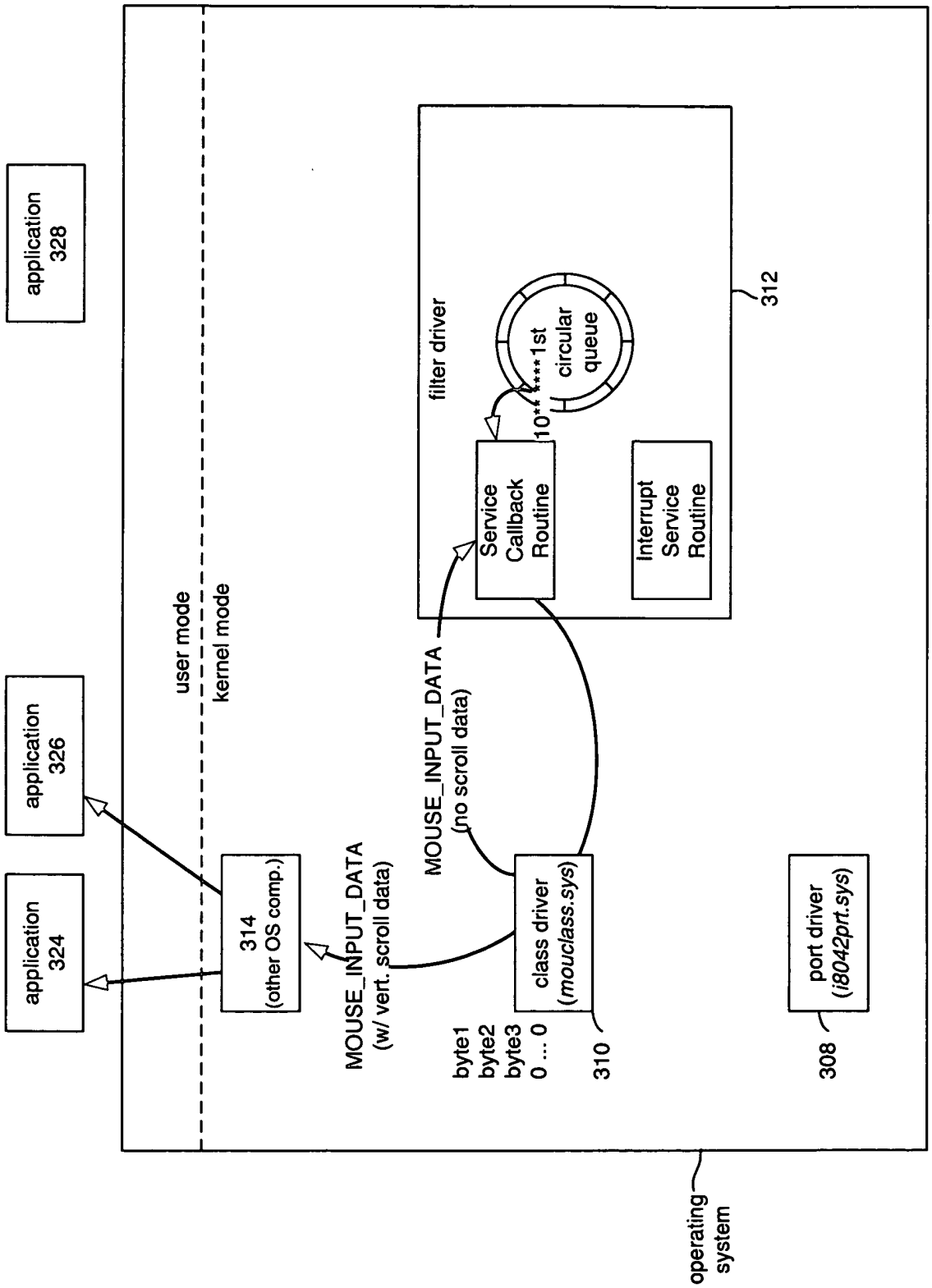
application 328
application 326
application 324
user mode
kernel mode
314 (other OS comp.)
MOUSE_INPUT_DATA (w/ vert. scroll data)
MOUSE_INPUT_DATA (no scroll data)
filter driver
Service Callback Routine
Interrupt Service Routine
1st circular queue
class driver (mouclass.sys)
byte1
byte2
byte3
0 ... 0
310
port driver (i8042prt.sys)
308
312
operating system

FIG. 7

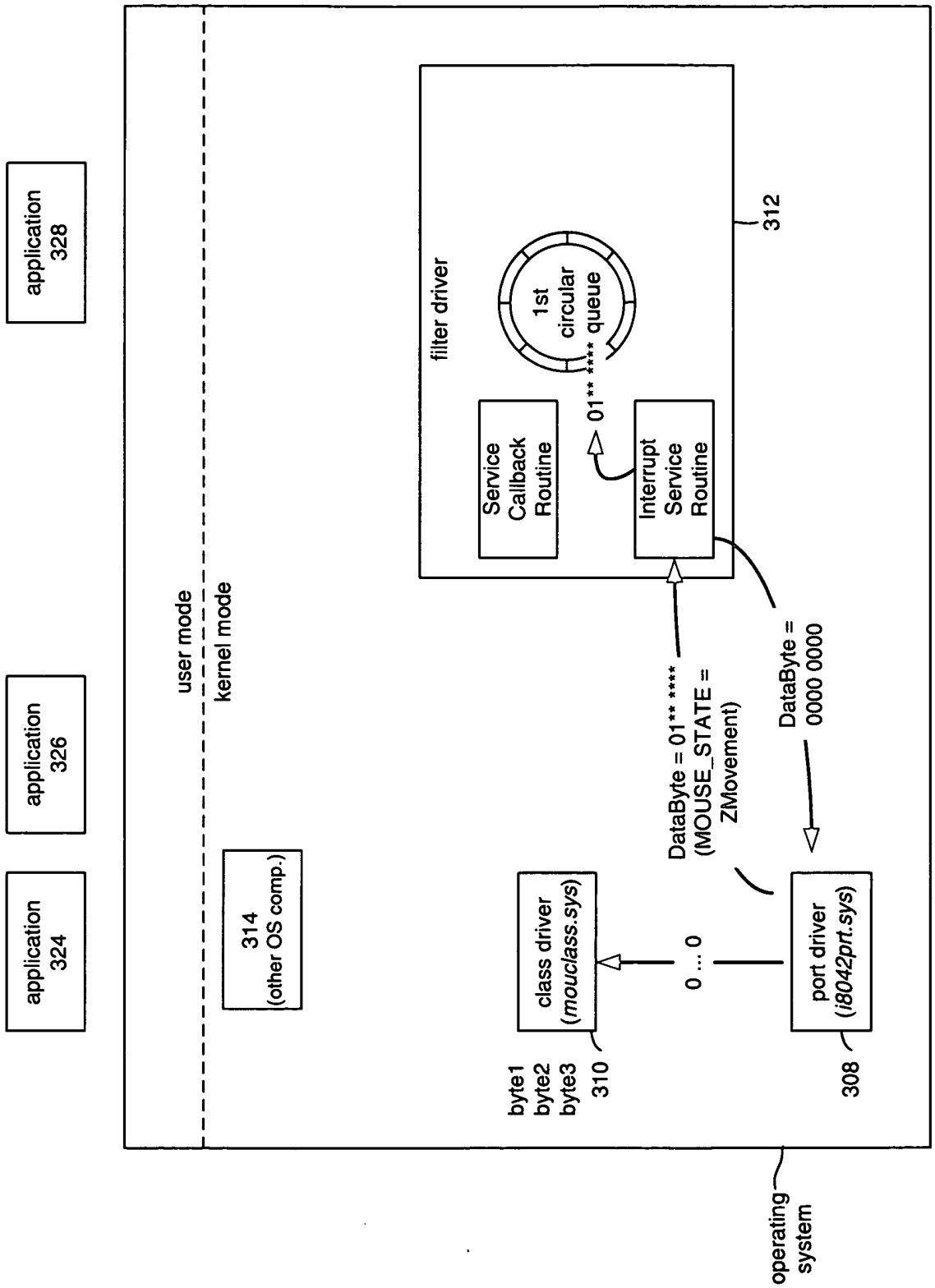
application 328
application 326
application 324
user mode
kernel mode
314 (other OS comp.)
filter driver
1st circular queue
01** **** queue
Service Callback Routine
Interrupt Service Routine
312
DataByte = 01** **** (MOUSE_STATE = ZMovement)
DataByte = 0000 0000
class driver (mouclass.sys)
port driver (i8042prt.sys)
0 ... 0
byte1 byte2 byte3
310
308
PS/2 packet |byte1|byte2|byte3|01** ****|
operating system

FIG. 8

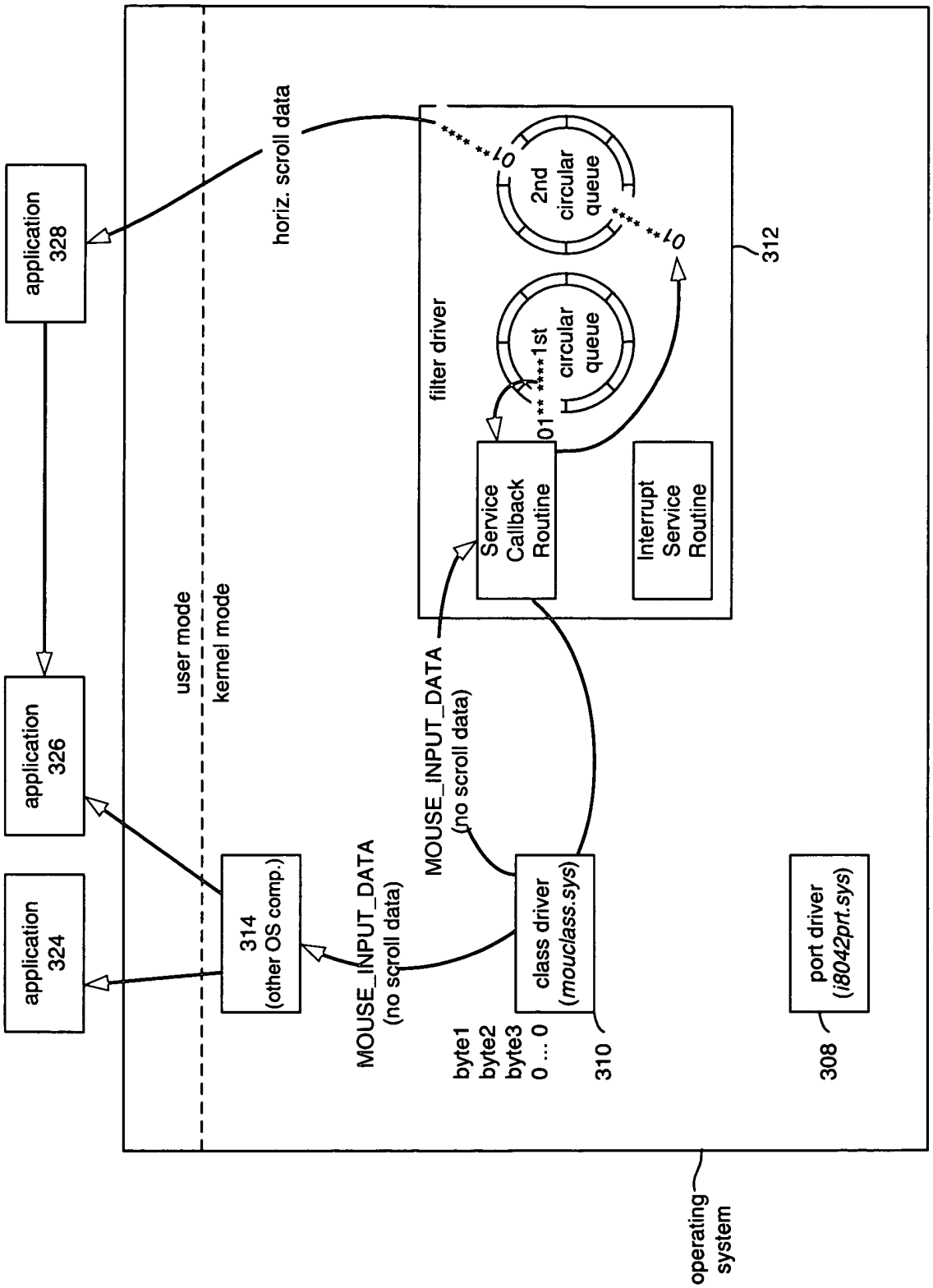
application 328
application 326
application 324
horiz. scroll data
user mode
kernel mode
filter driver
2nd circular queue
1st circular queue
Service Callback Routine
Interrupt Service Routine
312
314 (other OS comp.)
MOUSE_INPUT_DATA (no scroll data)
MOUSE_INPUT_DATA (no scroll data)
byte1
byte2
byte3
0 ... 0
class driver (mouclass.sys)
310
port driver (i8042prt.sys)
308
operating system

FIG. 9